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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/810,871

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Benjamin N. Eldridge

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7472

50905 7590 03/21/2007  
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EXAMINER

GILMAN, ALEXANDER

ART UNIT

PAPER NUMBER

2833

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/810,871

Applicant(s)

ELDRIDGE ET AL.

Examiner

Alexander D. Gilman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 36-100 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-100 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/28/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 36, 39-57, 75, 98, 99 are rejected under 35 U.S.C. 102(b) as being unpatentable over Eldridge et al (US Pat. No. 5,974,662).

With regard to claims 36, 43, 48, 99, Eldridge et al (US Pat. No. 5,974,662) disclose an assembly comprising:

a contactor (502);

an interposer substrate (504) having first and second opposite sides with a first set of resilient contact elements on the first side and the second set of resilient contact elements on the second side

a base (not shown) supporting the semiconductor device (508).

With regard to claims 39, 40, 61, Eldridge et al disclose the contact elements comprise a cantilever beam.

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With regard to claims 41, 62, 98, Eldridge et al disclose the resilient contact structures are offset in position from said second set of resilient contacts structures (Fig. 4, col. 28, lines 24-34).

With regard to claims 43-47, 65-68, Eldridge et al disclose the electronic devices disposed on the substrate (col. 28, lines 44-46).

With regard to claims 51-57, 75, Eldridge et al disclose that contactor comprising integrated circuits for testing semiconductor device including a wafer or plurality of singulated dices.

2. Claims 58, 60-74, and 76-78, 84-97 are rejected under 35 U.S.C. 102(b) as being anticipated by Eldridge et al (US Pat. No. 5,974,662)

With regard to claims 58 and 76-78, 84- 93 Eldridge et al (US Pat. No. 5,974,662) disclose an assembly comprising:

a contactor (502);

an interposer substrate forming a single block (r.n. 506 and col. 27, lines 64-67 ) having first and second opposite sides with a first set of resilient contact elements (514) on the first side and the second set of resilient contact elements (524).

a base (not shown) supporting the semiconductor device (508) comprising a wafer with a plurality of unsingulated dice (col. 1, lines 32-38) .

With regard to claims 60-74, Eldridge et al (US Pat. No. 5,974,662) disclose all of the limitations as respectively applied to claims 37,39,41-49, 51-54 below.

With regard to claims 93-97 , Eldridge et al (US Pat. No. 5,974,662) disclose application of forces (by planarizer which is attached to the contactor 502 , col. 32, lines 46-54; col. 36, lines 66-67) when the interposer moves from the first angular position to the second angular position to align the contacts of the contactor and the interposer)

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2. Claims 58, 76-78 and 80, 81, 84-89 are rejected under 35 U.S.C. 102(e) as being anticipated by Parrish.

With regard to claims 58, 76-78, 80, 81, 84-89, Parrish (US Pat. No. 6,215,320) discloses an assembly comprising:

a contactor (30);

an interposer substrate (36 ) having first and second opposite sides with a first set of resilient contact elements on the first side and the second set of resilient contact elements

a base (28) supporting the semiconductor device (26) comprising a wafer means (34) for securing said interposer with respect to said contactor such that at least one of said contactor or said interposer is moveable between a first position and a second position. wherein in said first position. said first plurality of contact elements do not contact said first terminals on said contactor. And in said second position, said first plurality of contact elements contact said first terminals on said contactor and said first plurality of contact elements and said second plurality of contact elements provide electrical connections from said first terminals on said contactor to a second plurality of terminals on said electronic device.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 37, 38, 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US Pat. No. 5,974,662) and Eldridge et al (US Pat. No. 6,184,053) Eldridge et al (US Pat. No. 5,974,662) disclose all of the limitations except for the resilient contact structures formed lithographically .

Eldridge et al (US Pat. No. 6,184,053) disclose the resilient contact structures, comprise a cantiliver beams and are formed lithographically (col. 3, lines 6-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the Eldridge et al (US Pat. No. 5,974,662) interposer with the resilient contact structures formed lithographically as taught by Eldridge et al (US Pat. No. 6,184,053), to precisely dispose the contacts

3. Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US Pat. No. 5,974,662) and further in view of Khandros et al. Eldridge et al (US Pat. No. 5,974,662) discloses all of the limitations except for the overtravel stops.

Khandros et al (US Pat. No. 6,064,213) disclose the overtravel stops (114).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the Loranger et al - Eldridge et al (US Pat. No. 5,974,662) with the overtravel stops as taught by Khandros et al (US Pat. No. 6,064,213), to control the travel length of the resilient contacts during the test.

4. Claims 42 and 63 rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US Pat. No. 5,974,662) and further in view of Brozowski et al.

Loranger et al - Eldridge et al (US Pat. No. 5,974,662) discloses all of the limitations except for the flexible substrate.

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Brozowski et al (Electronic Packaging & Interconnection Handbook, McGraw-Hill, 1997, Ch. 8) disclose (p. 8-5) the flexible substrate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the Loranger et al - Eldridge et al (US Pat. No. 5,974,662) with the flexible substrate, as taught by Brozowski et al, to improve alignment of the mating contacts..

Claims 42 and 63 rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US Pat. No. 5,974,662) in view of Sano

With regard to claim 100, Eldridge et al (US Pat. No. 5,974,662) do not disclose:

a flexible substrate of the contactor.

Sano (US 5,703,494) discloses (Fig. 6) a flexible substrate (40) of the contactor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the Eldridge et al contactor with a flexible substrate, as taught by Sano, to assure sufficient and balanced electrical contact (Eldridge, col. 2, lines 6-9).

### ***Response to Arguments***

Applicant's arguments filed 12/26/2006 have been fully considered but they are not persuasive.

With regard to claim 36, Applicants argue that prior art does not disclose a substrate that is a single block structure with resilient contacts on both sides. However, according to Eldridge et al (US 5,974,662) col. 27, lines 64-67) the element 506 can represent "a substrate that is a single block structure with resilient contacts on both sides" with omission element 504.

With regard to claim 58, Applicants argue that prior art does not disclose "means for attaching said interposer to said contactor such that at least one of said contactor or said interposer is

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moveable between a first position and a second position while said interposer is attached to said contactor.

The term "means for attaching" is considered as a broad claim. The devices of Parrish and Eldridge inherently disclose means for attaching said interposer to said contactor since in the process of the respective devices of operation interposer and the contactor connected and disconnect. The planarizers used by Parrish and Eldridge also can be interpreted as part of means for attaching since they work for spatial orientation of the contacts.

With regard to claim 84, Applicants argue that prior art does not disclose pressure directly applied to the substrate. However, the first pressure inherently should be pressed to initiate electrical contact between the respective elements in process of testing. It is not claimed how the pressure being applied with which force factors. Hence, any active or reactive force factor applied to the first substrate should create the direct pressure.

This is a RCE of applicant's earlier Application No. 09/810871. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however,



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event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander D. Gilman whose telephone number is 571 272-2004. The examiner can normally be reached on Monday-Friday, 10:30 a.m. - 8:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571 272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/16/2007

  
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